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ABSTRACT

This paper examines services being received by secondary students classified as seriously emotionally disturbed; school policies concerning their education; and the links between services, policies, and school performance. Data from a subset of 782 youth with serious emotional disturbances from the National Longitudinal Transition Study (NLTS) were analyzed. This report describes the characteristics of the study population; the philosophies, policies, and practices of the schools they attended; and the services available in the schools. The report next examines these students' receipt of services and their secondary school performance and outcomes as measured by absenteeism, grades and course failure, retention in grade, performance on minimum competency tests, and mode of school leaving. Finally, multivariate models are used to examine the link between school policies, service receipt, and absenteeism and course failure. Results indicated that fewer than half of the students had received counseling/therapy from any source, and only one third had received such services from their schools. Fifteen percent had received tutoring services. Very little of the variance in school performance was explained by the models, though the models suggest that tutoring and personal counseling/therapy may help improve student outcomes. Appendices provide background information on the NLTS sample and a listing of 21 reports and papers based on the NLTS. Contains 41 references. (DB)

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April 1992

SECONDARY SCHOOL STUDENTS CLASSIFIED AS SERIOUSLY EMOTIONALLY DISTURBED: HOW ARE THEY BEING SERVED?

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The National Longitudinal Transition Study of Special Education Students
SRI International

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Federal law (formerly PL 94-142, currently PL 101-476) mandates that students who have disabilities that affect their ability to learn receive special education and/or related services. A student's educational program and related or support services can be important influences on his or her secondary school performance, along with individual and family characteristics (see Figure 1). However, recent findings concerning youth classified as seriously emotionally disturbed (SED) suggest that the educational system is not fully meeting their needs. For example, Kaufman et al. (1987) found that more than two-thirds of 9- to 17-year-old SED students performed below grade level. Furthermore, the Twelfth Annual Report of Special Education Programs to Congress (1990) indicates that 40% of secondary school exiters classified as SED dropped out of school. These discouraging findings suggest the need to examine what services are being received by students classified as seriously emotionally disturbed, school policies concerning their education, and the links between services, policies, and school performance.

This paper conducts such an examination using data for 782 youth classified by their school districts as seriously emotionally disturbed. These youth constitute a subset of the National Longitudinal Transition Study (NLTS) sample. The NLTS is an ongoing study being conducted by SRI International under contract to the Office of Special Education Programs (OSEP) of the U.S. Department of Education. As part of that study, data were collected in the summer of 1987 for a nationally representative sample of more than 8,000 young people in all 11 federal special education disability categories who were between the ages of 13 and 21 and were enrolled as secondary special education students in the fall of the 1985-86 school year. Data were collected by telephone or in-person interviews with parents, from school records, and from a survey of educators in schools attended by study participants. (Appendix A has a more detailed description of data collection, data weighting and analyses. Appendix B lists other products available from the NLTS, including full reports on sampling and data collection methods.)

This report describes the characteristics of secondary school students classified as SED, the philosophies, policies, and practices of the schools they attended, and the services available in them. The report then examines these students' receipt of services and their secondary school performance and outcomes as measured by absenteeism, grades and course failure, retention in grade, performance on minimum competency tests, and mode of school leaving. Finally, multivariate models are used to examine the link between school policies, service receipt, and absenteeism and course failure.

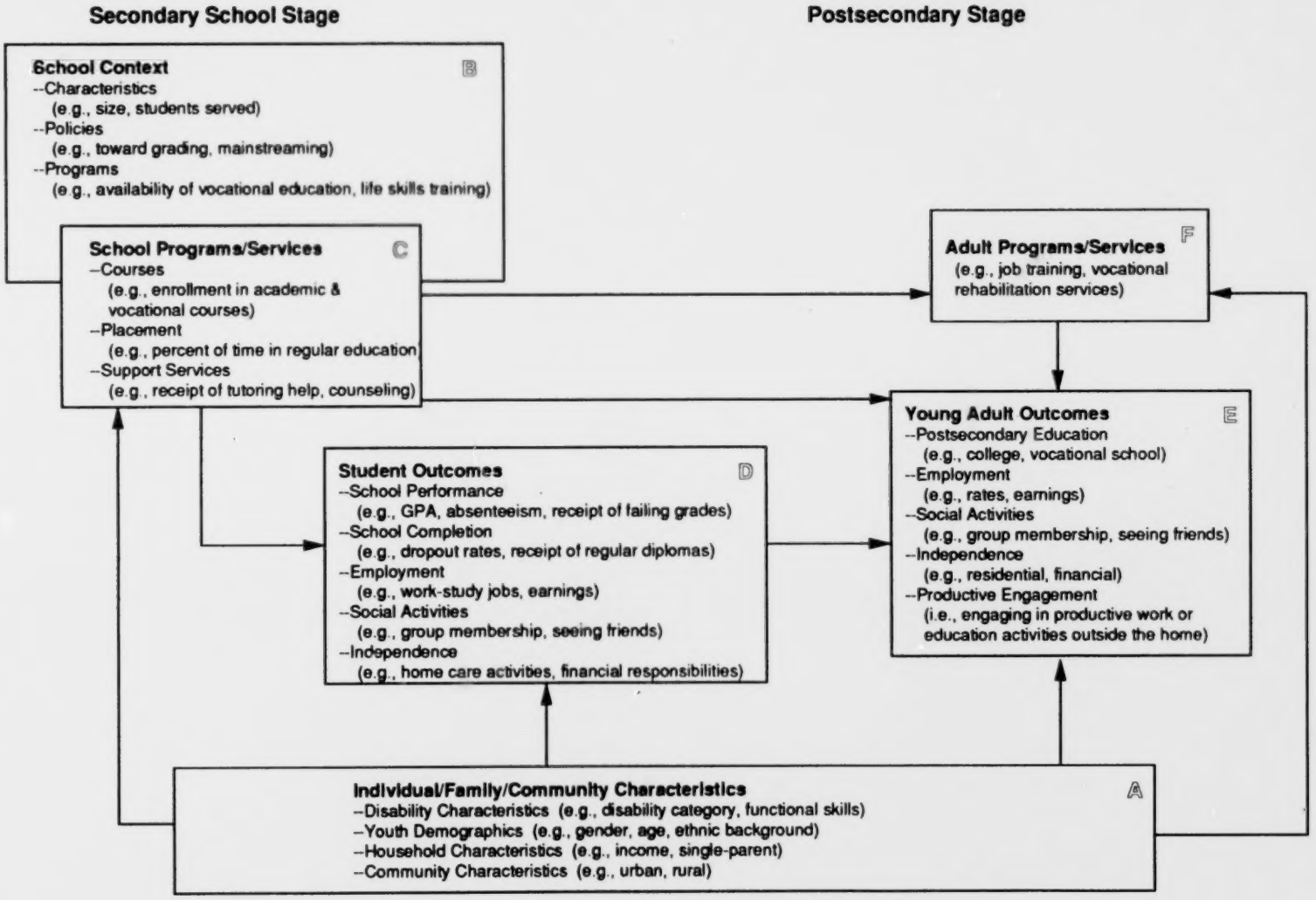

FIGURE 1 CONCEPTUAL FRAMEWORK OF TRANSITION EXPERIENCES AND OUTCOMES OF YOUTH WITH DISABILITIES

Characteristics of 1985-86 secondary school students classified as seriously emotionally disturbed

It is estimated that there are more than 150,000 students in secondary schools classified as "seriously emotionally disturbed."[1] According to the federal government, this disability is defined as:

> Exhibition of behavior disorders over a long period of time that adversely affect educational performance; this includes an inability to learn that cannot be explained by intellectual, sensory, or health factors; an inability to build or maintain satisfactory interpersonal relationships with peers and teachers; inappropriate types of behaviors or feelings under normal circumstances; a general pervasive mood of unhappiness or depression; or a tendency to develop physical symptoms or fears associated with personal or school problems.

Thus, youth with a variety of types of problems are included. Some of them suffer from neurobiological disorders, such as childhood schizophrenia or depressive disorder, while others have problems stemming from difficult family situations, such as abusive parents.

Compared with secondary school students in the general population, students classified as SED are more likely to be male, black, from households whose heads have low levels of education, and from single-parent households. As shown in Table 1, about 75% of 1985-86 secondary school students classified as seriously emotionally disturbed were male;[2] 67% were white, 25% were black, 6% were Hispanic, and 2% were of other ethnic backgrounds. In contrast, in the general population, about half of students were of each gender, 73% of students were white, 14% were black, 6% were Hispanic, and 7% were of other ethnic backgrounds.[3] About 33% of students classified as SED came from households whose head had fewer than 12 years of education, and 44% came from single-parent families. Strictly comparable data are not available for youth from the general population; however, data for 12- to 17-year-olds in the general population who were living with at least one parent indicate that about 22% of them came from households whose heads had fewer than 12 years of education, and 26% of them came from single-parent households (U.S. Bureau of the Census, 1988).

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1 Based on unpublished OSEP data.

2 Descriptive data are weighted so that findings generalize nationally to secondary school students classified as SED. N's in tables refer to actual sample size used in each analysis.

3 Data for the general population of youth come from the 1979-1983 National Longitudinal Survey of Youth (Center for Human Resource Research, 1990) and represent 13- to 21-year-old secondary school students.

Table 1

Characteristics of 1985-86 Secondary School Students Classified as Seriously Emotionally Disturbed

	Percent of Students[4]	Standard Error	N[5]
Gender			782
Male	76.6	(2.2)	
Female	23.4	(2.2)	
Ethnic background			644
White	67.2	(2.6)	
Black	25.0	(2.4)	
Hispanic	6.0	(1.3)	
Other	1.7	(0.7)	
Head of household of origin has less than 12 years education	33.4	(2.4)	783
Single-parent household of origin	44.3	(2.9)	598
Age at which parents reported youth first experienced difficulty			546
Before 1 year	8.9	(1.7)	
1-4 years	11.3	(1.9)	
5-8 years	41.4	(3.0)	
9-12 years	22.1	(2.5)	
13+ years	16.2	(2.2)	
Additional disability classification			779
Any additional disability	24.3	(2.2)	
Learning disabled	22.7	(2.1)	
Mentally retarded	11.2	(1.6)	
Mean IQ score: 86.4		(1.1)	427

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[4] Unless otherwise indicated, percentages of students in tables are weighted to represent all 13- to 21-year-old secondary school students classified as SED in the United States in the 1985-86 school year.

[5] N's shown in tables are the actual sample sizes used in analyses.

According to parent reports, it was most common for youth classified as SED (who were 15 to 23 years old when data were measured) to have begun having disability-related difficulties when they were between 5 and 8 years old, during their first years in school. About 40% of youth began having difficulties during these years. About 10% began to have problems before they reached their first birthday, and another 10% began to have problems between 1 and 4 years of age. About 16% began to experience problems after age 13.

Many students in special education have more than one disability (Marder & Cox, 1991). The students represented in this report were classified as having a primary disability of serious emotional disturbance. However, about 1/4 of students classified as seriously emotionally disturbed also had a secondary disability classification. The most frequently occurring secondary classifications were learning disabled (23%) and mentally retarded (8%).

The mean IQ score for youth classified as SED was 86.[6] This relatively low mean score is consistent with findings of past research, which also found youth with scores below 70 (who would be classified as mentally retarded in most states) included among youth classified as SED (e.g., Kaufman et al., 1987).

The sample used in this report includes youth from 15 to 23 years old (Table 2). When weighted (as for descriptive analyses in this report), 37% of youth were 15 and 16 years old, and about the same percentage were 17 and 18 years old. About 20% of the weighted sample were 19 or 20 years old, and about 4% were over 21.

What were the philosophies and practices of the secondary schools attended by students classified as SED?

This section reviews the general philosophy, policies, and practices concerning mainstreaming, grading, and minimum competency tests of secondary schools attended by students classified as seriously emotionally disturbed. Because the great majority (87%) of such students attended regular secondary schools, as opposed to schools that served only special education students, the remainder of this report focuses only on students in regular schools.

School Philosophy

The primary goal of secondary schooling for students in general has changed various times during this century (Grubb, 1989), and at present there is no consensus

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[6] The most frequently used test among this sample was the Wechsler with a mean of 100 and a standard deviation of 15. Although IQ scores were available only for 75% of youth in the sample classified as SED, findings based on investigation of the correlation of IQ scores with other measures of mental ability suggest that there is no bias in the scores.

Table 2

Age of Youth Classified as Seriously Emotionally Disturbed in the Weighted NLTS Sample

	Percent	Standard Error	N
Percentage of students whose age was			779
15-16	36.9	(2.4)	
17-18	39.0	(2.5)	
19-20	20.3	(2.0)	
21+	3.8	(1.0)	

as to what the primary function of secondary schools should be. There is even less consensus concerning what the main role of the school should be for students with disabilities. Should schools limit their focus to teaching academic skills to students with disabilities? Or should their main mission be to teach learning handicapped students other skills, such as job skills and independent living skills? Understanding the goal of education for students with disabilities is so important that it has been posed as the number 1 question by the National Association of State Boards of Education for consideration by its members (Roach, 1991).

The NLTS asked schools what they saw as their primary function in serving learning handicapped students. Schools attended by about half of secondary students classified as SED (52%) indicated that their primary function in serving learning handicapped students was to teach academic skills (Table 3), whereas schools attended by about 1/3 of students classified as SED saw their primary function as teaching independent living skills. Only 5% of students attended schools who saw their main purpose as training students for employment.

Mainstreaming

Individualization of instructional programs is central to PL 94-142; such individualization is seen as necessary to compensate for or circumvent the educational obstacles presented by disabilities. Special education classes often are smaller and are more likely to have instructional aides present in addition to the teacher, "clearly offering the opportunity for more individualized and small group instruction" (Singer et al., 1986).

Table 3

Philosophy of Regular Secondary Schools Attended by Students Classified as Seriously Emotionally Disturbed

	Percent of Students Attending Schools	Standard Error	N
The primary function of school to the learning handicapped is to:			439
Teach academic skills	51.7	(3.4)	
Teach independent living skills	34.3	(3.3)	
Train students for employment	5.2	(1.5)	

On the other hand, regular education classes offer students with disabilities very important opportunities to form friendships and model the behavior of nondisabled students and more challenging curricula (Kaufman, 1991). Equity concerns also encourage integration so that all students who can benefit from regular education instruction have the opportunity to do so. Accordingly, the maximum appropriate integration of special education students with the general student population is the specific intent of the "least restrictive environment" provision of PL 94-142, and since the passage of PL 101-476 the Department of Education appears to be especially encouraging mainstreaming of students classified as SED (Kaufman, 1991).

Consistent with the legislative push for mainstreaming, in the 1985-86 and 1986-87 school years, most students classified as SED spent the majority of their time in regular education classes. Twenty percent spent their full school day in regular education classes (Table 4), and similar percentages spent between 75% and 99% and between 50% and 74% of their time mainstreamed, respectively. Twenty-five percent of students were mainstreamed between 1% and 50%, and only 13% spent all their time in special classes.

Students were slightly more likely to be mainstreamed in nonacademic courses than in academic courses. In 1985-86 and 1986-87, more than 80% of students who took nonacademic courses were mainstreamed for at least one of them, whereas the comparable figure for academic courses was 70% ($p<.01$). Among students taking vocational courses, about 77% were mainstreamed for at least one of them.

The extent to which students can succeed in regular education classes may depend a great deal on whether or not they are expected to keep up with other students without special help. For many special education students, the expectation of keeping up with

Table 4

Policies and Practices Regarding Mainstreaming of Regular Secondary Schools Attended by Students Classified as SED

	Percentage of Students	Standard Error	N
Percent of time in regular education:			447
0	13.0	(2.2)	
1-24	10.4	(2.0)	
25-49	14.7	(2.4)	
50-74	21.0	(2.7)	
75-99	20.7	(2.7)	
100	20.0	(2.6)	
Of students who took a type of course, those who took at least one of them in regular education classes:			
Academic*	70.1	(3.1)	426
Vocational**	76.9	(3.3)	326
Nonacademic***	82.7	(3.2)	381
Schools expect mainstreamed students to keep up with rest of class without special help	39.9	(3.4)	442
Services available to regular education teachers when special education students are mainstreamed in their class			443
Consultation services by special education or other staff	96.9	(1.2)	
Special materials to use with mainstreamed students	48.2	(3.4)	
Inservice training on needs of mainstreamed students	39.7	(3.3)	
Human aides	26.5	(3.0)	
Smaller classes	12.5	(2.3)	
None of the above	0.3	(0.4)	

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* Academic courses include English/language arts, mathematics, science, social science, and foreign language.

** Vocational courses include home economics, courses in prevocational skills, and occupationally specific courses.

*** Nonacademic academic courses include physical education, music, art, drivers' education, etc.

the rest of a regular class without special help may result in a great deal of frustration, poor grades, and failure. Under these circumstances, students may be reluctant to participate in regular classes, and schools may be reluctant to place them in regular classes. The NLTS asked schools, "When your school mainstreams special education students, are they usually expected to keep up with the rest of the class without special help?" In the 1985-86 and 1986-87 school years, 40% of secondary students classified as SED attended schools that answered "yes" to this question, and the expectation was associated with the amount of time students were mainstreamed.

Despite this stated policy, virtually all schools made some type of training, service, or materials available to regular education teachers when they had special education students in their classes. In schools attended by almost all students classified as SED (97%), special education staff or other staff were available for consultations with teachers of mainstreamed students. Other types of materials and services were far less common, however. Special materials to use with mainstreamed students were available in the schools attended by about half of the students. Schools attended by about 40% of the students had inservice training on the needs of mainstreamed students for teachers. Measures to reduce the teacher:student ratio in classrooms with mainstreamed students were rarer. Schools attended by only 1/4 of students classified as SED had human aides in classrooms with mainstreamed students, and schools attended by only 13% reduced class sizes when students were mainstreamed.

Grades

Grades are the third area of a school's policy that can have powerful effects on students' experiences. Course grades provide students with often-powerful messages about not only their academic status but their more basic abilities, their standing in their classes, and their value as students. These messages often are more personal than ratings provided by standardized test scores, for example, because they reflect the assessments made by specific teachers with whom students have individual relationships. Over the course of an entire school career, grade performance helps shape students' images of themselves as learners and of their competence to perform academic tasks (Bloom, 1976; Finn, 1989). Given the profound effects grades can have on students' self image, schools are faced with the choice of whether the work of students with disabilities should be graded at all and, if so, whether it should be held to the same standards as other students.

In 1986-87, more than 90% of students classified as SED in regular secondary schools received grades (Table 5), and more than half of them (61%) attended schools that indicated that the same grading standards were applied to the work of special education students in regular classes as to the work of other students. Not surprisingly, for work done in special classes, different grading standards were more likely to be

used. Nevertheless, about 1/4 of students attended schools that graded work done in special classes by the same standards as work done by non-special education students.

Table 5

Policies and Practices Regarding Grading and Minimum Competency Tests of Regular Secondary Schools Attended by Students Classified as Seriously Emotionally Disturbed

	Percentage of Students	Standard Error	N
Grading			
Received grades	91.3	(1.8)	502
Students who attended schools in which:			
Special ed students in regular classes were graded using the same standards as other students	61.5	(6.8)	117
Special ed students in special classes were graded using the same standards as other students	23.6	(5.9)	117
Minimum competency tests			
Exempted from requirement	22.2	(3.6)	273
Of students who took MCT, those in schools where:			58
Same version and standards for completion of test were used for special ed students as for as other students	69.9	(10.4)	
Special ed students given assistance in taking test	44.4	(10.4)	
Special ed students given modified version of test	10.8	(6.5)	
Different standards for successful completion of test	12.2	(6.9)	

Minimum competency tests

In recent years, because of concern that substantial numbers of students were exiting secondary school without a basic body of knowledge, many states have instituted minimum competency tests (MCTs). In general, the purpose of such tests is two-fold: first, to guarantee that students have acquired certain basic knowledge before they are promoted to the next grade or are graduated, and, secondly, to enhance students' academic skills (Serow, Davies, & Parramore, 1982). However, their use has raised some concern in the special education community that MCTs could act as barriers to graduation for students with disabilities. These concerns are increased by such findings as reported by Allen, Rawlings, and Schildroth (1989) that deaf students were less likely to graduate with diplomas and more likely to receive certificates in states where minimum competency tests were required to obtain a diploma.

States, districts, and/or schools have a range of options regarding MCTs for special education students, from exempting them from the tests completely to requiring them to take and pass the same tests as other students with no assistance. About 1 in 4 students classified as SED attended schools that administered MCTs but exempted special education students from them. Of those who were subject to the tests, 70% attended schools that required special education students to take the same version of the test and pass according to the same standards as other students. However, schools attended by almost half of these students (55%) reported that special education students were given some assistance in taking the test.[7] Schools attended by 11% of students classified as SED who were subject to MCTs indicated that special education students were given modified versions of the tests, and schools attended by 12% reported that standards for successful completion of the tests differed for special education students and other students.

What disability-related services were available in secondary schools attended by students classified as SED? How much coordination was there between schools and other agencies?

By definition, special education students need some type of special help to benefit from the educational process. For some students, the help comes in the form of special classes; however, for others, particularly those who are mainstreamed, other types of services are important. The nature of their disability suggests that many students classified as seriously emotionally disturbed would benefit from psychological counseling or therapy. In addition, although they may not help solve the root problems

[7] The nature of the assistance was not reported; therefore, the assistance could be relevant or not for students classified as SED. For example, by "special assistance" a school might refer only to interpreters and/or readers for students with sensory impairments, which would not affect students classified as SED. On the other hand, "special assistance" might include extra time or other special conditions for students classified as SED.

of these students, tutors and/or human aides can play important roles in helping students to master schoolwork. Furthermore, for those students whose emotional disturbances have external causes, such as severely dysfunctional families, social workers can be at least as important as psychological counseling. To what extent are these types of services available in schools attended by youth classified as SED?

Although the school is the logical provider of some types of services (e.g., tutoring), students may receive psychological and social services from other sources. Indeed, there have been allegations that families are pressured by schools to obtain psychological services for students who need them from outside the schools (Knitzer, Steinberg, & Fleisch, 1990). To the extent that students receive services from sources other than schools, coordination between schools and the service providers is important (Kaufman, 1991). With coordination, students' chances of receiving the services they need are enhanced, and the possibility of various agencies and service providers working at cross purposes is reduced. In this section, we examine the extent to which services were available in regular secondary schools attended by youth classified as SED, and to what extent schools coordinated services with other agencies.

In-School Services

The NLTS asked schools whether they usually made available counseling or psychotherapy, social work, and tutors or human aides to special education students who needed them. Secondary schools attended by most students classified as SED indicated that they provided all three types of services; almost 70% provided counseling or psychotherapy for disability-related problems (Table 6), close to 80% provided social work, and about 85% provided tutors or human aides. While these percentages may seem high, the "glass" seems far too empty when one considers the fact that more than 30% of students classified as SED attended schools that did not provide counseling or psychotherapy, more than 20% had no access to social workers through their school, and almost 15% had no access to human aides or tutors.

Past research has painted a discouraging picture of the postschool outcomes for special education students in terms of employment, enrollment in postsecondary schools, and independent living (e.g., Edgar, 1987; Hasazi, Gordon, & Roe, 1985; Mithaug, Horiuchi, & Fanning, 1985; Sitlington, Frank, & Cooper, 1989). Given these poor outcomes, in recent years there has been considerable attention to the need for programs specifically designed to assist special education students in making the transition from secondary school to adult life. Despite this emphasis, in the 1986-87 school year transition programs were available in schools attended by only 14% of students classified as SED. It is likely that this picture will change drastically with the passage of the Individuals with Disabilities Education Act (PL 101-476), which mandates that schools establish transition programs.

Table 6

Services Available in Regular Secondary Schools Attended by Students Classified as Seriously Emotionally Disturbed

	Percentage of Students Attending Schools	Standard Error	N
School usually makes available to special ed students:			
Counseling or psychotherapy for disability-related problems	68.9	(3.3)	414
Life skills/occupational therapy	88.6	(2.1)	431
Social work	77.8	(2.9)	420
Human aides or tutors	86.3	(2.4)	440
Special program to help special education students with transition	13.8	(2.5)	404

Coordination with Other Service Agencies

As stated earlier, when outside agencies provide services to students, coordination of services among those agencies and the school is important. Typically, coordination of services can happen by schools being in direct contact with other agencies regarding the services students are receiving or by students having case managers who oversee and coordinate all the services and programs in which a student participates.

Schools attended by most students classified as SED appear to have relied more on case managers for coordination than on direct contacts with other agencies. Although schools attended by almost all students reported that they had some contact with mental health and social service agencies, the frequency of contact was typically very low, with schools attended by the vast majority of students indicating that they were in contact with these agencies no more than "a couple times a year." Schools attended by only about 1/4 of students reported being in contact with these types of agencies at least monthly (Table 7). In contrast, schools attended by about 87% of secondary students classified as SED indicated that "special education students typically had case managers or a person assigned to them who is responsible for coordinating the services they receive."

Given the high percentage of schools that reported that students had case managers, one might imagine that all schools either had frequent contact with agencies or assigned case managers; however, schools attended by 1 in 10 students classified as SED had neither case managers nor frequent contacts with mental health or social service agencies.

Table 7

Coordination of Services with Outside Agencies in Secondary Schools Attended by Students Classified as SED

	Percentage of Students Attending Schools	Standard Error	N
Special education students have case managers	86.6	(2.3)	446
Frequency of contacts with outside agencies			
Mental health agencies			429
A couple of times per school year or less	87.6	(2.8)	
Monthly	12.4	(2.8)	
Weekly	9.0	(2.0)	
Social service agencies			424
A couple times per school year or less	72.8	(3.1)	
Monthly	18.4	(2.7)	
Weekly	8.8	(2.0)	
Coordination of services by case managers or frequent direct contact with other mental health or social service agencies			365
Neither case manager nor frequent contact	10.0	(2.2)	
Case managers only	63.7	(3.6)	
Frequent contact with agency	3.9	(1.4)	
Both	22.4	(3.1)	

What services were secondary school students classified as SED receiving?

Although, as we saw in the last section, schools indicated that they made services available to students, how many secondary school students classified as SED were actually receiving services, what types of services were they receiving, and how much of a given service did they receive? The answers to these questions come both from parents' and schools' reports of youths' receipt of services and from abstracts of school records. The three types of services considered in this report are personal counseling or therapy, help from tutors or readers, and occupational therapy or life skills training.

Despite the importance of psychological counseling or therapy for students classified as SED, there is no mandate for the provision of such services. In fact, the percentage of students that actually received such services is rather low; in the 12-month period ending summer 1987, fewer than half (43%) of students with this classification in regular secondary schools received such services (Table 8). Of these, most students received services from their schools. Nevertheless, in all, only about 1/3 of students classified as SED in regular secondary schools received personal counseling/therapy from their schools. About 7% received counseling/therapy from private therapists, and 6% from other service agencies.

Help from tutors or readers and life skills training/occupational therapy were less common than personal counseling. Only 15% of students classified as SED received such help by tutors or readers, and about 20% received life skills training or occupational therapy.[8] These types of services were provided almost exclusively by schools.

Looking at receipt of each service separately might lead one to think that almost all students were receiving some type of service. However, this was far from the case. In 1986-87, although 38% of regular secondary school students classified as SED received one service and 17% of students received multiple services, 43% received no services at all. Among students who received any service, the most common pattern was to receive only one—personal counseling or therapy.

What were the outcomes of secondary school students classified as SED?

Secondary school performance and outcomes can be measured in a variety of ways. The importance of grades and minimum competency tests and the effects they may have on students have been discussed earlier. To these measures of performance, in this section I add absenteeism, course failure, retention in grade, and

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[8] Life skills training/occupational therapy includes a wide variety of types of instruction, from grooming to cooking and housekeeping skills. See Appendix C in Wagner et al., 1991, for a description of the definition and operationalization of this and other variables used in this report.

Table 8

Services Received in a 12-Month Period by 1986-87 Secondary School Students[9] Classified as Seriously Emotional Disturbed

	Percentage of Students	Standard Error	N
Counseling or therapy[10]			
From any source	43.0	(3.3)	452
From secondary school	33.8	(3.1)	452
Private therapist	7.0	(1.8)	420
Other service agency	6.2	(1.7)	376
Tutor or reader			451
From any source	15.0	(2.4)	
From secondary school	12.1	(2.2)	
Occupational therapy/life skills training			453
From any source	19.4	(2.6)	
From secondary school	18.1	(2.5)	
Types of services received			449
No services at all	43.9	(3.3)	
One service only			
Counseling /therapy	25.9	(2.9)	
Tutor/reader	5.2	(1.5)	
Occupational therapy/life skills	7.2	(1.7)	
More than one service			
Counseling/therapy and tutor/reader	5.4	(1.5)	
Counseling/therapy and occupational therapy/life skills	7.9	(1.8)	
Counseling, tutor/reader, and life skills	3.4	(1.2)	
Receipt of services and/or reduced student:teacher ratios in regular education classes:*			371
Neither	29.1	(3.3)	
Reduced class size or human aides	11.4	(2.3)	
Some service	46.0	(3.7)	
Services and reduced class size or human aides	13.6	(2.5)	

[9] Does not include students in special schools.
[10] Percents do not sum to 100 because some students received more than one type of service.
* Excludes students with no regular education classes.

the ultimate outcome of secondary school, which is whether youth drop out of secondary school.[11]

Absenteeism

A minimum expectation for student performance is that students attend school; without participation in the educational process, its benefits are difficult to attain. Although students with disabilities may need to miss school for reasons related to their disabilities, such as illness or treatments, there also may be a voluntary component to some absenteeism. Peng, Fetters, and Kolstad (1981) report that 20% of 1980 high school seniors in the general population reported being absent from school more than 5 days in the school year for reasons other than illness.

High absenteeism, whether voluntary or involuntary, presents significant challenges to meeting academic standards. Past research has identified absenteeism as perhaps the single strongest predictor of academic failure and dropout decisions for students with disabilities (Thornton et al., 1987; Donahoe & Zigmond, 1990; Schellenberg, Frye, & Tomsic, 1988). Using NLTS data, Wagner (1991) also found absenteeism to be a powerful predictor of both of these for youth with disabilities as a group.

According to students' school records collected by the NLTS, rates of absenteeism among secondary students classified as SED appear to be very high.[12] Fewer than 1/4 of these youth were absent 5 days or less in their most recent school year (Table 9), and almost 1/3 were absent more than 20 days. These rates of absenteeism were much higher than for high school students in general, among whom 37% were absent 5 or fewer days a year and 17% were absent more than 20 days.

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[11] All measures of school performance discussed in this section were collected by the NLTS from abstracts of records of students' most recent year in school. Data for mode of school leaving come both from students' school records and from parent reports (see Wagner et al., 1991, for a description of the various components of Wave 1 of the NLTS and complete variable descriptions).

[12] Data for the number of days absent in the most recent school year were missing in 15% of the abstracts of records received from schools. No significant differences were found between those students for whom data were provided and those for whom data were missing on IQ scores or GPA. There was, however, a significantly greater absence of data for students in middle school (grade levels 7 or 8) than higher grades (23% missing vs. 11% to 13% missing, $p<.01$). Because younger students had somewhat lower rates of absenteeism, the underrepresentation of these students would slightly inflate overall absenteeism levels.

Table 9

Selected Outcomes of Regular Secondary School Students Classified as Seriously Emotionally Disturbed in Most Recent School Year

	Percentage of Students	Standard Error	N
Days absent			444
0-5	23.4	(3.1)	
6-10	21.0	(3.0)	
11-20	26.2	(3.2)	
21-30	14.0	(2.5)	
30+	15.4	(2.6)	
Mean days absent: 16.7		(1.1)	
Grades			
GPA			451
3.25 or higher	3.2	(1.2)	
2.75-3,24	8.4	(1.8)	
2.25-2.74	19.3	(2.6)	
1.75-2.24	22.3	(2.7)	451
1.25-1.74	20.1	(2.6)	
< 1.25	27.0	(2.9)	
Mean GPA : 1.7		(0.6)	451
Course failure			
Of students receiving grades percentage failing one or more course	43.9	(3.1)	504
Of students who had graded *regular education* classes, percentage failing one or more	44.6	(3.5)	384
Of students who had graded *special education* classes, percentage failing one or more	25.9	(3.0)	413
Retention in grade			
Of those who remained in school, percentage retained in grade	16.1	(3.2)	245

Table 9

Selected Outcomes of Regular Secondary School Students Classified as Seriously Emotional Disturbed in Most Recent School Year
(concluded)

	Percentage of Students	Standard Error	N
Minimum Competency Tests			
Students subject to MCTs but exempted from the requirement	22.2	3.6	273
Of students who took the test			189
Passed the entire test	36.6	(5.0)	
Passed some of the test	40.8	(5.1)	
Failed the test	22.7	(4.3)	
How exiters left school			232
Graduated or certificated	49.9	(4.8)	
Dropped out	44.0	(4.8)	
Suspended or expelled	4.8	(2.1)	
Aged out	1.2	(1.1)	

Grades

The powerful role that grades play in shaping a student's experiences has been discussed earlier. According to their grade point averages,[13] most students classified as SED were performing below average. More than 1 in 4 students had GPAs of less than 1.25, and another 1 in 5 had GPAs between 1.25 and 1.75. In other words, almost half of students classified as SED had below "C-" averages. Very high grades were quite uncommon; only 3% of students had GPAs of 3.25 or higher, and 8% had GPAs between 2.75 and 3.24.

Although overall grade point average summarizes a student's general grade performance, unless it is very low, it does not indicate whether a student failed a course. Secondary students may have had a C average or even higher and still have failed one or more courses, with a resulting loss of credits needed for graduation.

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[13] Grade point average is calculated on a 4-point scale, with a grade of A assigned 4 points, B assigned 3 points, C assigned 2 points, D assigned 1 point, and failed courses assigned no value. Points are summed and divided by the total number of courses, including those failed.

NLTS data indicate that 44% of regular secondary school students classified as seriously emotionally disturbed failed at least one course in their most recent year of school. Most of these failing grades occurred in regular education classes. Forty-five percent of students who had graded regular education classes failed at least one of them. In contrast, 26% of students in graded special education classes failed at least one.

These findings must be interpreted with extreme caution. Although course grades are often-used indicators of school performance, their limitations for research purposes are well known. Grade inflation makes comparisons of grades across time suspect. Variations in grading standards across schools and districts reveal that aggregated grade data often obscure more differences than they reveal even for students in the general population. In special education, a further difficulty in understanding school performance from course grades results from variations in the policies and standards used to grade the work of special education students. As shown in Table 5, not all special education students in regular schools received grades. Furthermore, some schools apply the same standards to special education students as to other students while other schools do not. For all these reasons, the grades of students with disabilities cannot be used for comparisons with the general population or any other fixed standard. Nevertheless, they are indicative of the messages students received about their competence to do the learning tasks expected of them.

Retention in Grade

A fundamental measure of school performance is meeting the expectations of performance for a given grade level and being promoted to the next grade level at the end of the year. Students who do not meet grade-level expectations repeat a grade, with the hope that further exposure to the required materials will help them master the skills and knowledge they failed to acquire on the first attempt. Although there has been some controversy over the academic benefits of nonpromotion (Center for Policy Research in Education, 1990; Gallup, 1989; Shepard & Smith, 1989; Marion & Coladarci, 1990), it appears to have strong emotional costs for students who feel punished and stigmatized (Bachman, Green, & Wirtanen, 1971; Byrnes, 1989; Shepard & Smith, 1989). Yamamoto (1980) also reports that children rate being retained in grade as an extremely stressful life event.

The long-range prospects for those who experience nonpromotion are not good. Some have estimated that students who have repeated a grade are between 4 and 5 times more likely to drop out of school than are students who did not repeat grades (Bachman et al., 1971; Raber, 1990). The effect of grade retention on dropout rates apparently is independent of student achievement (Grissom & Shepard, 1989).

The retention rate[14] for a single school year of students classified as seriously emotionally disturbed was 16%. This rate is considerably higher than estimates for the general population of students, which range from 4% to 9% (Shepard & Smith, 1989), and is the highest of secondary school students with any disability classification—9 percentage points higher than that of students classified as learning disabled ($p<.05$; Wagner, 1991).

In addition to low grades, failure of minimum competency tests may lead to students being retained in grade. Among students classified as SED, just over 1/3 of students who took MCTs passed the entire test, and another 40% passed part of the test. Almost 1 in 4 students failed the test. Although not strictly comparable, data reported on students in the general population in Louisiana suggest that their rates of passing MCTs were similar to those of youth classified as SED. Brooks and Pittman (1990) report that 69% of 10th graders in that state passed the language arts portion of the MCT and 55% passed the mathematics portion.

Mode of School Leaving

Whether or not a person graduates from secondary school has been found to have serious consequences. For example, in the general population, secondary school graduates have significantly higher employment rates and wages than nongraduates (Mincer, 1990; Murphy & Welch, 1990). Furthermore, lack of a high school diploma considerably limits an individual's postsecondary education options. Among youth with disabilities, the NLTS has found dropping out of school to be associated with poorer employment outcomes, lower rates of postsecondary attendance, and higher arrest rates in the first 5 years after leaving secondary school (Wagner et al., 1992). Yet, despite its high costs, dropping out often follows poor performance in secondary school.

Given their poor showing on all other measures of secondary school performance, it is not surprising that a high percentage of youth classified as seriously emotionally disturbed dropped out of secondary school. Among youth with this classification who exited secondary school in the 1985-86 or 1986-87 school years, almost 45% dropped

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[14] The NLTS measured the extent of grade retention for students with disabilities during their most recent year in secondary school. The rate of retention was calculated for all students who were assigned to a grade level and who remained in secondary school. Students not assigned to a grade level were eliminated from the analysis because they generally do not advance from grade to grade in the same manner as other students. Students who dropped out, withdrew, or moved during a school year were also excluded from the analysis because it is unknown whether they would have been promoted had they remained in school. The retention rate, therefore, is the percentage of students assigned to a grade level and still in school who were retained in grade, rather than being promoted to a grade, at the end of the school year.

out. Furthermore, an additional 5% of youth did not return to school after they were suspended or expelled. Thus, only half of all youth classified as seriously emotionally disturbed who left secondary school did so by graduating.

How did services and other factors relate to the performance of secondary school students classified as SED?

As stated in the introduction, the goal of school policies and services is to improve the school performance and outcomes of students. Thus far, this report has presented a description of secondary school students classified as SED, reviewed the philosophies and policies of regular secondary schools attended by students classified as SED, and has described the secondary school performance and outcomes of this group of students. Yet the questions remain: To what extent do personal characteristics of youth classified as SED influence their performance and outcomes in secondary school? To what extent do schools have an impact?

To explore these questions, I estimated multivariate models of two measures of school performance: absenteeism and course failure. (Unfortunately, a model of dropping out could not be estimated because of the small number of dropouts for whom data on independent variables were available.) Absenteeism is measured as days absent in the most recent school year, course failure is measured as having failed at least one course in the most recent school year. Both models were estimated using data for all youth in the sample who were students in regular secondary schools in the 1986-87 school year.[15]

With these exclusions, and because of missing data, the samples for the models are considerably reduced from the original sample of 779 described in Table 1. Means and standard deviations of the samples used in the models are presented in Appendix C. As in Table 1, the descriptive statistics presented in Appendix C are weighted; however, models were estimated using unweighted data.[16]

Despite the dichotomous nature of two of the dependent variables, I estimated all models using linear regression. Although logistic regression is generally preferable for estimating models with dichotomous dependent variables, after estimating models with both methods and confirming that results were substantially the same, I chose to present results from the linear regressions because of their ease of interpretation and familiarity to most readers. The coefficients presented for the models with dichotomous dependent variables indicate the effect of each covariate on the probability of the dependent variable being whatever is represented by "1," when all other variables in

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[15] Youth who left school before the 1986-87 school year were excluded from the analyses so that variables regarding service receipt (which covered only the 12-month period preceding the interview) would relate to service receipt *while in secondary school.*

[16] Given correctly specified models, weighting would not change the results.

the model are held constant. To illustrate, consider the dependent variable "failing a class." A coefficient of .1 for a covariate would mean that for each unit change in the covariate, a person would have a 10% greater probability of having failed a class.

I estimated models with various specifications, testing the hypotheses implied by the conceptual model presented in the introduction—that both individual-level and school-level factors are associated with both dependent variables. However, because of the small sample size, models could contain only a limited number of variables. Therefore, when a variable was not of primary interest, and I consistently found no statistically significant effects between it and either dependent variable regardless of the other variables in the model, and the coefficients of other variables did not change with its exclusion, I excluded the variable from the final models presented in Table 10.

This was the case for most demographic variables traditionally found to be associated with secondary school performance and outcomes. Specifically, I found no statistically significant associations of gender, ethnic background, coming from a household whose head had less than 12 years of education, or coming from a single-parent household had any significant association with number of days absent or with probability of failing at least one course for students classified as seriously emotionally disturbed who attended regular secondary schools.

The models presented in Table 10 show the association of students' absenteeism and course failure with IQ score; having received in the preceding 12 months personal counseling or therapy; help from a tutor, reader, or interpreter; or occupational therapy or life skills classes; the school's philosophy concerning its primary function for learning-handicapped students; whether special education students who were mainstreamed were expected to keep up without special help; and the percentage of time a student spent in regular education classes. The models also test the notion that absenteeism is associated with course failure.

Absenteeism

We can say very little concerning absenteeism because, regardless of the specification of the model, very little of the variance in days absent was explained. Indeed, the adjusted r^2 of .04 for the model in Table 10 was the largest amount of variance explained with any specification of the model estimated. Despite the very low amount of variance explained, however, the model suggests that receiving tutoring services, being in a school that expects mainstreamed students to keep up without special help, and spending more time in regular education classes may decrease absenteeism.

Table 10

Factors Related to Absenteeism and Course Failure of Students in Regular Secondary Schools Classified as Seriously Emotionally Disturbed

	Unstandardized Regression Coefficient	
	Days Absent[17]	**Course Failure**[16]
Youth characteristics		
Measured IQ	0.11	0.00
Services received in preceding 12 months		
Personal counseling/therapy	-2.12	-0.15*
Tutoring/reading	-6.44·	-0.06
Life skills/occupational therapy	-1.28	-0.04
School philosophy and policies		
Primary function: teach academics	-1.33	-0.15*
Mainstreamed students expected to keep up without special help	-4.82·	0.00
In most recent school year		
Each 10% of time in regular ed	0.79·	-0.01
Number of days absent	---	0.01···
N	190	190
Adjusted r^2	.04	.09

*p< .10; ·p< .05; ··p< .01; ···p< .001.

[17] Includes youth who were in school and out of school less than 1 year.

Tutoring services may help lower absenteeism by helping students have a better grasp of their work, or at least of how to approach it. Even if performance on actual school work is not immediately affected, improved knowledge of how to tackle assignments would almost certainly decrease feelings of frustration that could make a student reluctant to attend school.

Schools expecting mainstreamed students to keep up with the rest of the class and percent of time in regular education classes may be associated with lower absenteeism for several reasons. On one hand, once receipt (or nonreceipt) of tutoring is held constant, high expectations for students and the experiences of challenging curricula and interactions with other students in regular classes may make school a more rewarding and interesting experience for them, thus making them less reluctant to attend. On the other hand, unmeasured differences between students who attended schools where they were expected to keep up and students who attended other schools, and between students with more and less time in regular education classes may well account for some of the associations. To the extent that students in school with "sink or swim" policies and students who were mainstreamed more were less severely disabled, these variables may be proxying for differences in severity of disability.

Failing a course

Models of course failure also were able to explain little of the variance (r^2=.09). Interestingly, none of the variables that are associated with absenteeism have direct relationships with course failure. Furthermore, a student's IQ also is not associated with course failure. However, as expected, absenteeism appears to have a strong association with failing a course. For each day absent, students' probability of failing a course increased by 1%. On the other hand, although neither tutoring/reading nor occupational therapy/life skills appears to be related to course failure, having had personal counseling or therapy in the preceding 12 months appears to reduce the probability of course failure.

A school's philosophy also appears to be directly associated with course failure. Students in schools that saw their primary function for learning handicapped students as teaching academic skills were more likely to fail courses than students in schools that saw their main mission as teaching independent living skills or training students for competitive employment. Precisely how schools' philosophies translate into what students experienced, affecting their probability of course failure, is unclear. Among various possibilities are that schools that saw their main mission as teaching academics had more rigorous standards than other schools, or had more limited curricula that were less well suited to the abilities and interests of many students classified as SED.

Summary and Conclusion

This paper has reviewed the school philosophy and policies of students such as these nationally, finding that most students attended schools in which the primary focus for learning-handicapped students was to teach academic skills. Most also attended schools that graded the work of mainstreamed students (but not of students in special classes) according to the same standards as the work of non-special education students, and where special education students took the same version of minimum competency tests and were held to the same standards for passing the tests as other students.

Although most schools stated that they made counseling/therapy, life skills/ occupational therapy, social work, and human aides or tutors available to special education students who needed them, almost half of students had received no services at all in the preceding year. Fewer than half of students had received counseling/therapy from any source, and only 1/3 had received such services from their schools. Fifteen percent had received tutoring services, and 19% had received life skills training/occupational therapy. Twenty-nine percent of students who spent some time in regular education classes had received no services and were in schools that did not reduce class sizes or use human aides in classes where special education students were mainstreamed.

The secondary school outcomes of students classified as SED leave much room for improvement. With an average of 17 days absent in a year, their rate of absenteeism was the highest of youth with any type of disability (Wagner, 1991). On average, their grades were low; almost half of students who received grades had failed one or more courses in the preceding year, and 16% were retained in grade at the end of the school year. The culmination of this discouraging set of outcomes is that as many youth left secondary school by dropping out or being suspended/expelled as left by graduating.

What makes a difference in secondary school performance and outcomes? Unfortunately, because of small sample sizes, relationships of variables with mode of school completion could not be examined. Multivariate models were able to explain very little of the variation in absenteeism and course failure. We have seen that none of the individual characteristics usually associated with secondary school performance and outcomes for other youth—gender, ethnic background, coming from a low-SES family, or IQ—showed significant associations with either absenteeism or course failure. In contrast, the models estimated suggest that tutoring and personal counseling/therapy help improve student outcomes.

Given the nature of the disabilities included in the label "seriously emotionally distrubed," these findings are hardly surprising. Consider how difficult life, let alone schoolwork, must be for these youth, who struggle with disabilities that can include constant shifts in their reality caused by delusions and hallucinations, or depressions so

deep they can have difficulty even moving, or extreme anxiety caused by abusive parents. With such disabilities, it is hardly surprising that being male or female, white, black, or Hispanic make no difference. On the other hand, it is also not surprising that services intended to help youth cope, with both schoolwork and with greater problems, do make a difference.

Very little of the variance in school performance is explained by the models. Among the possible reasons for this lack of explanatory power are the absence of measures of severity of disability and quality of programs and services. Yet examining phenomena such as severity and quality is difficult in large-scale quantitative research such as the NLTS. Furthermore, other, less understood, factors also may be operating. Given the poor outcomes of youth classified as seriously emotionally disturbed, further research is crucial, as has been recognized in PL 101-476. Yet, at this juncture, it seems that research in a more qualitative vein will be most helpful in illuminating what can make a difference in the outcomes of students classified as seriously emotionally disturbed.

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Appendix A

BACKGROUND INFORMATION ON THE NLTS SAMPLE

This appendix provides somewhat greater detail on several methodological aspects of the NLTS, including:

- Data collection components.
- Sampling of districts, schools, and students.
- Weighting of NLTS data.
- Estimation and use of standard errors.
- Construction of comparison groups from the general population using the National Longitudinal Survey of Youth (U.S. Department of Labor).

Components of the NLTS

The NLTS has several components:

- ***The Parent/Youth Survey.*** In the summer and fall of 1987, parents were interviewed by telephone to determine information on family background and expectations for the youth in the sample, characteristics of the youth, experiences with special services, the youths' educational attainments (including postsecondary education), employment experiences, and measures of social integration. Parents rather than youth were selected as respondents for the first wave of data collection because of the need for family background information and because, with most students still being in secondary school and living at home, parents were believed to be accurate respondents for the issues addressed. The survey was repeated in 1990, when youth were interviewed if they were able to respond.
- ***School Records.*** In 1987 information was abstracted from students' school records for the most recent year in secondary school (either the 1985-86 or 1986-87 school year). This information related to courses taken, grades received (if in a graded program), placement, related services received from the school, status at the end of the year, attendance, IQ, and experiences with minimum competency testing. School transcripts were collected in 1990 for youth who had been in secondary school at any time since the 1986-87 school year.
- ***School Program Survey.*** In 1987, schools attended by sample students in the 1986-87 school year were surveyed for information on enrollment, staffing, programs and related services offered to secondary special education students, policies affecting special education programs and students, and community resources for the disabled.
- ***Student School Program Survey.*** In 1990, this survey obtained information about youth who still were in secondary school. Respondents were teachers familiar with students' school programs. They reported about students' in-class performance, class size, school climate, and transition planning activities that had occurred for each student.
- ***Explanatory Substudies.*** Studies involving subsamples of youth in selected disability categories examined in greater depth students' secondary school programs, the patterns of transition outcomes achieved by youth who were out of secondary school, and the relationship between school experiences and outcomes. Data were collected for in-school youth in 1988 and 1989 and for out-of-school youth in 1989.

The NLTS Sample

The initial NLTS sample was constructed in two stages. A sample of 450 school districts was selected randomly from the universe of approximately 14,000 school districts serving secondary (grade 7 or above) students in special education,* which had been stratified by region of the country, a measure of district wealth involving the proportion of students in poverty (Orshansky percentile), and student enrollment. Because not enough districts agreed to participate, a replacement sample of 178 additional districts was selected. More than 80 state-supported special schools serving secondary-age deaf, blind, and deaf-blind students also were invited to participate in the study. A total of 303 school districts and 22 special schools agreed to have their students selected for the study.

Analysis of the potential bias of the district sample indicated virtually no systematic bias that would have an impact on study results when participating districts were compared to nonparticipants on several characteristics of the students served, participation in Vocational Rehabilitation programs, the extent of school-based and community resources for the disabled, the configuration of other education agencies serving district students, and metropolitan status (see Javitz, 1990 for more information on the LEA sample). The one exception was a significant underrepresentation of districts serving grades kindergarten through eight. Many of these districts did not consider themselves as secondary school districts, even though they served grades seven and eight, which are considered secondary grade levels. In addition, bias may exist on factors for which data were not available for such comparisons.

Students were selected from rosters compiled by districts, which were instructed to include all students in special education in the 1985-86 school year who were in grades 7 through 12 or whose birthdays were in 1972 or before, whether or not they were served within the district or outside the district (e.g., in state-supported residential schools). Rosters were stratified into 3 age groups (13 to 15, 16 to 18, over 18) for each of the 11 federal special education disability categories and youth were randomly selected from each age/disability group so that approximately 800 to 1,000 students were selected in each disability category (with the exception of deaf-blind, for which fewer than 100 students were served in the districts and schools included in the sample).

In part because of the time lapse between sample selection and data collection, many students could not be located at the addresses or telephone numbers provided by the schools. Of the 12,833 students selected for the sample, about one-third could not be reached by telephone for the 1987 parent interview. (For more than half of these, addresses and telephone

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* The 1983 Quality Education Data, Inc. (QED) database was used to construct the sampling frame. QED is a private nonprofit firm located in Denver, Colorado. Special education cooperatives and other special service units were not sampled directly (83% of special education students are served directly by school districts; Moore et al., 1988). However, instructions to districts for compiling student rosters asked districts to include on their listing any students sent from their district to such cooperatives or special service units. Despite these instructions, some districts may have underreported students served outside the district.

numbers were not provided by the schools/districts from which they were sampled.) This relatively high rate of inability to reach sample members confirmed the importance of including in the NLTS a substudy of nonrespondents to determine whether those who were reached for the telephone interview were a representative sample of the population to which the study was intended to generalize. To identify whether bias existed in the interview sample, interviewers went to 28 school districts with relatively high nonresponse rates to locate and interview in person those who could not be reached by telephone. Of the 554 sought for in-person interviews, 442 were found and interviewed, a response rate of 80%. A comparison of telephone interview respondents with in-person interview respondents showed that the telephone sample underrepresented lower-income households. The sample was reweighted to adjust for that bias, as described in the next section.

Data from 1990 on trends in postschool outcomes are based on the responses of 1,990 youth who satisfied four conditions: 1) they were enrolled in special education at a secondary school in the 1985-86 school year, 2) they left secondary school by September 1987, 3) their parent or guardian completed an interview in the wave 1 data collection effort, and 4) either the parent or youth completed a telephone interview or mail questionnaire in the wave 2 data collection effort. These youth were weighted to represent all youth enrolled in special education in the 1985-86 school year who had left secondary school by September 1987.

Weighting Procedures and the Population to Which Data Generalize

Youth with disabilities for whom data could be gathered were weighted to represent the U.S. population of students in special education in the 1985-86 school year who were in grades 7 through 12 or at least 13 years old. Because it is a sample of students at various ages, the NLTS sample does not generalize to youth who had dropped out of school before that age. For example, the sample of 18-year-olds generalizes to youth who were 18 and still in secondary school in 1985-86, not to all 18-year-olds with disabilities, many of whom may had left school at an earlier age.

In performing sample weighting for wave 1 (1987), three mutually exclusive groups of sample members were distinguished:

(A) Youth whose parents responded to the telephone interview.

(B) Youth whose parents did not respond to the telephone interview but were interviewed in person.

(C) Youth whose parents did not respond to either the telephone or in-person interviews but for whom we obtained a record abstract.

A major concern in weighting was to determine whether there was a nonresponse bias and to calculate the weights in such a way as to minimize that bias. There was a potential for three types of nonresponse bias:*

(1) Bias attributable to the inability to locate respondents because they had moved or had nonworking telephone numbers.

(2) Bias attributable to refusal to complete an interview (only 3% of those available to be interviewed refused).

(3) Bias attributable to circumstances that made it infeasible to locate or process a student's school record.

Of these three types of nonresponse, the first was believed to be the most frequent and to have the greatest influence on the analysis. Type 1 bias also was the only type of nonresponse that could be estimated and corrected.

The magnitude of type 1 nonresponse bias was estimated by comparing responses to items available for the three groups of respondents (after adjusting for differences in the frequency with which youth in different disability categories were selected and differences in the size of the LEAs selected). Group A was wealthier, more highly educated, and less likely to be minority than group B. In addition, group A was more likely to have students who graduated from high school than groups B or C (which had similar dropout rates). Groups A and B were compared on several additional measures for which data were unavailable for group C. The youth described by the two groups were similar on these additional items, including gender, employment status, pay, functional skills, association with a social group, and length of time since leaving school. Adjusting sample weights to eliminate bias in the income distribution eliminated bias in parental educational attainment and ethnic composition, but did not affect differences in dropout rates. Groups B and C were large enough that if they were treated the same as group A in the weighting process, the resulting dropout distribution would be approximately correct.

Sample weighting involved the following steps:

- Data from the first groups of sample members were used to estimate the income distribution for each disability category that would have been obtained in the absence of type 1 nonresponse bias.
- Respondents from all three groups were combined and weighted up to the universe by disability category. Weights were computed within strata used to select the sample (i.e., LEA size and wealth, student disability category and age).
- Weights from three low-incidence disability categories (deaf, orthopedically impaired, and visually impaired) were adjusted to increase the effective sample size. These

* We assumed that nonrespondents who could not be located because LEAs did not provide student names would have chosen to participate at about the same rate as parents in districts in which youth could be identified. The remaining nonrespondents would presumably have been distributed between the three types of nonresponse mentioned above.

adjustments consisted primarily of slightly increasing the weights of students in larger LEAs and decreasing the weights of students in smaller LEAs. Responses before and after these weighting adjustments were nearly identical. In addition, the three deaf/blind youth from medium-size or smaller districts, who had large weights, were removed from the sample to increase the effective sample size. Thus, NLTS results do not represent the very small number of deaf/blind students in medium-size or smaller LEAs.

- The resulting weights were adjusted so that each disability category exhibited the appropriate income distribution estimated in step 1 above. These adjustments were modest (relative to the range of weights within disability category); the weights of the poorest respondents were multiplied by a factor of approximately 1.6 and the weights of the wealthiest respondents were multiplied by a factor of approximately .7.

Because analyses of postschool outcomes included 1990 data for only a subset of youth, new weights were needed for 1990 data. The first step in weighting the 1,990 out-of-school youth was to identify a group of 3,046 youth who had been enrolled in special education in the 1985-86 school year, who had left secondary school by September 1987, and for whom we had sufficient data so that these youth had been given a weight in the wave 1 analysis. (This did not require that the parent of the youth complete a parent/guardian interview; having a school record abstract was sufficient to receive a wave 1 weight.) Use of this wave 1 weight allowed the results for these 3,046 youth to be projected to the corresponding national population (that is, youth who were enrolled in special education in secondary school in 1985-86 and who had left secondary school by September 1987).

The second step in weighting was to use the group of 3,046 youth and their wave 1 weights to calculate distributions of the following:

- ***Age***—The primary categories were 15 to 17 years, individual years of age from 18 to 22, and a combined category of 23 and above.
- ***Ethnic background***—The primary categories were black; white; Hispanic; and a combined category for Indian/Alaskan, Asian/Pacific Islander; and other. In addition there was a category for "don't know" or refusals, and a category for missing (typically because the data collection instrument that was completed for youth did not ask for this information).
- ***School completion status***—The primary categories were graduated, aged out, and a combined category of dropped out, suspended, or expelled. In addition there was a category for "don't know" or "plans to return to school."
- ***Gender.***
- ***Household income in 1986*** (or 1990 if 1986 data was not available). The primary categories were under $12,000; $12,000 to $19,999; $20,000 to $24,999; under $25,000 but otherwise unspecified; $25,000 to $37,999; $38,000 to $50,000; and over $50,000. Those with incomes of $25,000 or over but otherwise unspecified were grouped with those with household incomes between $25,000 and $37,999. In addition there was a category for those with missing information and a category for those who responded "don't know," refused to answer, or indicated that the youth was institutionalized.

The third step was the use of a weighting program to calculate weights for the 1,990 youth so that they matched the demographic distributions of the 3,046 youth. The weighting was accomplished using Deming's algorithm, which iteratively modified the wave 1 weights for the 1,990 youth until they generated demographic marginals that were very similar to those obtained using the 3,046 youth. Each disability class was weighted separately and in general the demographic marginals were matched within a fraction of 1 percent. (Only for the deaf/blind, where sample sizes were very small, did any marginals fail to match within 1 percent, and here they differed no more than 2%.)

Estimation of Standard Errors

The NLTS stratified cluster sample introduces design effects that reduce the precision of estimates for a sample of a given size, compared with a simple random sample. The design effects within the NLTS affect the precision of estimates to varying degrees for different subpopulations and different variables. Pseudo-replication is widely accepted as a variance estimation technique in the presence of design effects. However, it is not cost-effective for estimating the standard errors of the thousands of variables and subpopulations tabulated in the numerous NLTS reports and its statistical almanacs. Therefore, pseudo-replication was conducted on a limited number of variables to calibrate a cost-effective approximation formula, using the following procedures:

- A set of 25 variables representing the parent interview, school program survey, and record abstract was identified for the purpose of developing a statistical approximation formula; these included 16 nominal variables and 9 continuous variables.
- Standard errors of the weighted means of the selected variables were estimated in two ways. The first procedure involved pseudo- replication. For each variable, standard errors were calculated for students in each disability category and for the total sample (300 standard errors) using a partially balanced experimental design specifying how youth were to be allocated to 16 half-samples. The sample was split on the basis of the school districts and special schools from which youth originally were sampled. Districts and schools were paired on the basis of enrollment and a measure of poverty, and one member of each pair was assigned to each half-sample. Sample weights were computed for each half-sample as if those in the half-sample were the only study participants.

  The following formula was used to estimate the standard error of the mean for youth in all conditions:

$$\text{Standard error} = [(1/16) \sum_{i} (M_i - M)^2]^{1/2}$$

  where M_i is the mean calculated for youth in one of the 16 half- samples), M is the mean response calculated from the full sample, and the summation extends over all 16 half-samples. (Note that responses to questions from the school program survey were attached to the records of students in the responding schools so that means for these items were computed using student weights.)

- The second estimation procedure involved an approximation formula based on an estimate of the effective sample size for each disability category and the total sample. The sampling efficiency (E) for a group was calculated using the following formula:

$$E = M_w^2/(M_w^2+S_w^2)$$

where M_w and S_w are the mean and standard deviation of the student weights over all members of the group. The approximation formula for the standard error of the weighted mean of nominal variables is:

$$\text{Standard error} = [P(1-P)/(N \times E)]^{1/2}$$

where P is the full-sample weighted proportion of "yes" responses to a particular question in the group, N is the unweighted number of "yes" or "no" responses to the question in the group, and E is the sampling efficiency of the group. The approximation formula for the standard error of the mean of a continuous variable is:

$$\text{Standard error} = [S_2/(N \times E)]^{1/2}$$

where S_2 is the variance of responses in the group for the continuous variable (computed with frequencies equal to full-sample weights) and N is the unweighted number of respondents to the question in the group. These formulas were used to compute a total of 300 standard errors for the same variables and groups addressed using pseudo-replication.

- To assess the accuracy of the standard errors produced by these formulas, we used scatter plots to compare them with standard errors produced using pseudo-replication. For both nominal and continuous variables, the approximate best fit was a 45 degree line. That is, on average, the formula based on estimates of effective sample size neither systematically overestimated nor underestimated the standard error obtained using pseudo-replication, arguing for use of the more cost-effective estimation formulas. However, because error remains in the estimates that might result in underestimating the true standard errors in some instances, we took a conservative approach and multiplied the standard errors produced using the estimation formulas by 1.25. The vast majority of the standard errors so obtained were larger than the standard errors obtained by pseudo-replication. Thus, standard errors were calculated using the effective sample size estimation formulas and increased by a factor of 1.25.

Creating Comparison Groups from the General Population of Youth

We have created two comparison groups from the general population of youth to use as benchmarks against which to interpret outcomes of youth with disabilities. The first group is a sample of youth from the general population, based on data from the National Longitudinal Survey of Youth (NLSY, U.S. Department of Labor). This group permits us to identify differences between youth with disabilities and the general population. However, we cannot attribute those differences to the presence of a disability because Chapter 2 has illustrated that youth with disabilities differed from youth in the general population on demographic

characteristics that would be expected to influence their outcomes (e.g., gender, ethnicity). Hence, a second comparison group was constructed from the NLSY that has the same distribution as youth with disabilities on important demographic variables. The construction of these two groups is described below.

The NLSY contains data for more than 12,000 noninstitutionalized youth who were between the ages of 13 and 21 in 1979. These youth have been interviewed annually from 1979 to the present concerning a wide variety of topics, including their family background, schooling, employment, marital status, and living arrangements. For the present study, data from the 1979-1983 interviews were used; after those years, youth in the NLSY were generally older than youth in the NLTS.

Because the universe of the NLTS is youth who were in special education programs in 1985-86, while the universe for the NLSY is all youth (regardless of present or past school status), the following steps were taken to achieve comparability. First, only NLSY youth who were currently in school or had been in school during the current or previous academic year were included in the analysis. Second, comparisons were restricted to youth between 15 and 20 years of age. This was done primarily because very few NLSY youth over age 20 met the requirement of having been in secondary school the academic year before the interview. Little is lost by this restriction because the NLTS sample contains very few individuals below the age of 15 and relatively few over age 20.

Thus, we used all the in-school observations and any observations when a person was out of school, but had been in school during the academic year before the interview. There were up to 5 in-school interviews for a given youth. For most people, only one out-of-school observation was included. Two out-of-school interviews could occur if a youth left school during an academic year but before the spring interview. In that case, the interviews of the spring of that academic year and the next spring were included.

NLSY provides sampling weights based on respondents' probability of selection. However, our use of multiple observations per respondent for many analyses resulted in older youth being overrepresented. We corrected this bias by multiplying each individual's weight by:

$$\frac{\text{Weighted N of individuals of the youth's age in 1980}}{\text{Weighted N of the youth's age for all observations in the sample.}}$$

For analyses that used multiple observations, this weight was used. For analyses that used one observation only (for instance, data on arrests came only from the 1980 interview), the original weight supplied by the NLSY was used.

As indicated above, youth with disabilities differ in several demographic characteristics from the general population of youth. The comparison group we constructed to "hold constant" these differences was formed by weighting the NLSY data to match the distribution of selected demographic characteristics of youth with disabilities. Using these weights, the comparison

population has the same distributions of gender, ethnicity, and head of household's education as the population of youth with disabilities.

Despite our adjustments, some important noncomparabilities remain. They are as follows:

- ***Respondent***. NLTS interviewed parents, while NLSY interviewed youth. Although there is some evidence that parents in the general population tend to underreport the employment activities of their teenage children (Freeman and Medoff, 1982), the extent to which parents and youth differ in reporting other phenomena is not known.
- ***Month of interview***. The modal month of interview was August for the NLTS and March for the NLSY. The two outcomes most affected by differences in timing of interview are school completion status and employment status. Fortunately, NLSY data included youths' employment status as of August 15, and we were able to construct a variable on school completion status as of the summer after the interview. However, most data on occupational distributions, part-time/full-time status, and wages come from the summer for NLTS youth and the spring for NLSY youth.
- ***Year of interview***. NLTS interviews took place in 1987, while NLSY data come from 1979-1982. Readers should be sensitive to the fact that period effects may have influenced some variables. We adjusted for period effects for only one variable, wages, by operationalizing wages as the percent of the population earning the minimum wage or less.
- ***Time out of school***. The most important consequence of differences in the month of interview affect analyses of data for youth who were no longer in secondary school. More than three-fourths (76%) of NLSY secondary school graduates in the sample (weighted) had been out of school between 9 and 11 months when they were interviewed. In contrast, about 56% of NLTS graduates had been out of school about 2 months, and about 44% had been out of school about 14 months.
- ***Unmeasured or uncontrolled demographic differences***. The groups may continue to differ in unmeasured ways or in ways that were not adjusted for in the reweighting. For example, we were not able to weight the comparison population by urbanicity, despite knowing that NLTS and NLSY samples differ significantly on this factor, because of noncomparability of the measures of urbanicity in the two data sets.
- ***Exact wording of questions and response categories***. Wording of questions and response categories differed between the NLTS and the NLSY. Considerable research has shown responses to items can be affected by these types of differences (e.g., Hippler, Schwarz, and Sudman, 1987).

National Longitudinal Transition Study of Special Education Students

National Longitudinal Transition Study

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- "The National Longitudinal Transition Study of Special Education Students: Report on Procedures for the First Wave of Data Collection (1987)." M. Wagner, L. Newman, and D. Shaver, 1989 (includes data collection instruments). 280 pp. $25.00. [Order No. 126]

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Appendix C

CHARACTERISTICS OF THE SAMPLE USED IN EXPLANATORY MODELS

	Models of Absenteeism and Course Failure		Model of Dropping Out	
	Percent/ Mean	Standard Error	Percent/ Mean	Standard Error
Student Characteristics				
Gender				
Male	80.1	(4.2)	79.4	(4.7)
Female	19.1	(4.2)	20.6	(4.7)
Ethnic background				
White	79.5	(4.4)	78.8	(4.5)
Black	16.1	(4.0)	15.8	(5.0)
Hispanic	3.6	(2.0)	4.5	(2.5)
Head of household of origin has less than 12 years' education	45.0	(5.6)	47.5	(6.8)
Single-parent household of origin	38.3	(5.5)	38.4	(6.1)
Mean IQ score	86.8	(1.4)	86.6	(1.5)
Services in preceding 12 months				
Counseling/therapy	49.7	(5.2)	48.4	(5.8)
Tutor or reader	17.5	(4.0)	17.3	(4.4)
Life skills/occupational therapy	23.9	(4.5)	21.3	(4.8)
School philosophy and practices				
Primary function of school				
Teach academic skills	51.9	(5.2)	52.0	(5.8)
Teach independent living skills	37.6	(5.1)	36.3	(5.6)
Train for employment	1.4	(1.2)	1.1	(1.2)
Combination or other	9.1	(3.1)	10.6	(3.8)
Mainstreamed students expected to keep up with class	38.3	(5.1)	38.8	(5.7)
Mean percentage of time in regular classes	57.2	(1.4)	57.7	(3.7)
N	190		156	